



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,320	06/28/2004	Steffen Heidenreich	44091	9109
23548 7590 02/04/2008 LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			EXAMINER MERKLING, MATTHEW J	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 02/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,320	HEIDENREICH, STEFFEN	
	Examiner	Art Unit	
	Matthew J. Merkling	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 7-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152,

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 13, 21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Iida et al. (US 4,728,503).

Regarding claim 21, Iida discloses a filter element (Fig. 1) comprising a dimensionally stable porous ceramic formed body (1, col. 2 lines 34-37) with a porous membrane layer (2) over the ceramic formed body (see Fig. 2) and an interior that forms a filtrate space and a dimensionally stable sintered porous catalyst body (4, which is coated on the ceramic layer with no support, col. 2 lines 41-46) in the interior of the formed body, wherein the catalyst body comprises catalyst material (4) and the interior of the formed body includes an open flow channel (see Fig. 1).

Regarding claims 11 and 13, Motoki, as discussed in claim 21 above, further discloses porous formed body (1) has a cylindrical configuration (see abstract) and the interior is closed on one side (see Fig. 1) and wherein the catalyst body (4) are tubes that are open both sides (see Fig. 1 and 2 and abstract).

Art Unit: 1795

Regarding claim 23, lida further discloses the interior forms a filtrate space (see flow directions in Fig. 1).

Regarding claim 24, lida further discloses the catalyst material comprises an oxide (col. 2 lines 37-40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) in view of lida et al. (US 4,728,503).

Regarding claim 1, Motoki discloses a filter element (Fig. 10A/B) comprising a porous (filter) ceramic formed body (col. 10, lines 13-15, (111), col. 5 line 58—col. 6 line 9), the porous ceramic formed body having a wall defining an interior that forms a space for unfiltered fluid (G), and a porous ceramic formed body insert

Art Unit: 1795

(115) and spaced apart from the wall to provide an intermediate space, wherein the intermediate space between the porous formed body and the formed body insert is filled with a bulk catalyst material (112, C) and an open flow channel (see Fig. 10A/B, the center of the filter element remains open).

While Motoki discloses a hot gas filter utilized to filter combustion exhaust gas from refuse incinerators (col. 1 lines 4-7), Motoki fails to explicitly disclose a porous ceramic membrane layer over the ceramic formed body.

Iida also discloses a hot gas filter utilized to filter combustion exhaust gas from refuse incinerators (see abstract).

Iida teaches a porous ceramic formed body (1) that is coated with a pre-coat layer (2) that is formed of ceramic (alumina, zeolite, etc. col. 2 lines 52-62) in order to prevent the filter from clogging during operation with a refuse incinerator (col. 3 lines 13-22).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the ceramic pre-coat layer of Iida to the ceramic formed body of Motoki in order to prevent clogging of the filter during operation with a refuse incinerator.

Regarding claims 10, Motoki, as discussed in claim 1 above, further discloses porous formed body (111) has a cylindrical configuration (tubular, col. 10 lines 13-15) and the interior is closed on one side (see Figs. 10A/B and 13A/B) and wherein the formed body insert (col. 10 lines 13-15, (115)) and catalyst body (col. 12 lines 23-30, (117)) are tubes that are open on both sides (see Figs. 10A/B, 13A/B).

Regarding claim 22, Motoki further discloses the interior forms a filtrate space (see Fig. 10A).

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) and Iida et al. (US 4,728,503) as applied to claim 1 above, and further in view of Buck (US 6,284,201).

Regarding claims 7 and 8, the high temperature filtering apparatus of Motoki (col. 1 lines 4-7), as discussed in claim 1 above, fails to teach the catalytic bulk material comprises metallic or ceramic (which is a metallic oxide, see "ceramic" *The American Heritage® Science Dictionary* Houghton Mifflin Company) fibers.

Buck discloses an apparatus for purification of gases also comprising filters.

Buck teaches ceramic fibers coated with catalytic material in order to provide a material that is resistant to high temperature (col. 4 lines 12-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the ceramic fibers of Buck in the catalytically coated material of Motoki in order to provide a material that is resistant to high temperature.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) and Iida et al. (US 4,728,503) as applied to claim 1 above, and further in view of Moroni et al. (US 3,925,248).

Regarding claim 9, Motoki, as discussed in claim 1 above, fails to teach the catalytic bulk material comprises plastic fibers or expanded plastics.

Moroni also discloses an apparatus for filtering gasses.

Moroni teaches a foam plastic catalyst support material (see abstract) in the form of extremely fine grains (fibers, col. 1 line 67-68) that is used in filtering and purifying gasses, as an advantageous support material for removing odors and noxious substances (col. 1 line 54 – col. 2 line 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the plastic material of Moroni in the catalyst material of modified Motoki in order to advantageously purify gasses and remove odors and noxious substances.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) and Iida et al. (US 4,728,503) as applied to claim 1 above, and further in view of Sellakumar (US 5,242,472).

Regarding claim 12, Motoki, as discussed in claim 1 above, teaches the porous formed body is cylindrical (tubular, col. 10 lines 13-15) and the formed body insert (115) and catalyst body (117) are open on both sides (see Figs. 10A/B, 13A/B). Motoki fails to teach the porous formed body having openings at both ends.

Sellakumar also discloses a filtering apparatus.

Sellakumar teaches filtering elements (17) that are open on both ends (col. 3 lines 62-67) in order to allow fluid to be passed through filter in the axial direction quickly to remove filtered material that has built up on the filter (col. 4 lines 30-41).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add openings on both sides of the filtering element, as in Sellakumar, to the filter element of modified Motoki in order to allow fluid to be passed through filter in the axial direction quickly to remove filtered material that has built up on the filter.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) and Iida et al. (US 4,728,503) as applied to claim 1 above, and further in view of Prolss (US 4,243,536).

Regarding claim 14, Motoki, as discussed in claim 1 above, further discloses the porous formed body (111) has a peripheral wall, a bottom wall, and a top wall (see Figs. 10A/B, 13A/B) which enclose an interior region, and wherein the formed body insert (115) and catalyst body (117) represent a smaller version of the porous formed body (see Figs. 10A/B, 13A/B).

Motoki fails to teach the porous formed body having a disk shape.

Prolss also discloses a filter apparatus.

Prolss teaches a filter apparatus with disk shaped filter elements (4) with inlets and outlets at the top and bottom of the elements (col. 1 lines 52-68, see Fig. 1), in order to provide an efficient filter that is simple and economical (col. 1 lines 52-68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use filter elements in the shape of disks, as in Prolss, in the filter

Art Unit: 1795

element of modified Motoki in order to provide an efficient filter that is simple and economical.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al. (US 4,728,503) as applied to claim 21 above, and further in view of Prolss (US 4,243,536).

Regarding claim 15, Iida, as discussed in claim 21 above, further discloses the porous formed body (1) has a peripheral wall, a bottom wall, and a top wall (see Fig. 1) which enclose an interior region, and wherein the catalyst body (4) represent a smaller version of the porous formed body (see Figs. 1 and 2).

Iida fails to teach the porous formed body having a disk shape.

Prolss also discloses a filter apparatus.

Prolss teaches a filter apparatus with disk shaped filter elements (4) with inlets and outlets at the top and bottom of the elements (col. 1 lines 52-68, see Fig. 1), in order to provide an efficient filter that is simple and economical (col. 1 lines 52-68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use filter elements in the shape of disks, as in Prolss, in the filter element of modified Iida in order to provide an efficient filter that is simple and economical.

11. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoki et al. (US 5,925,156) and Iida et al. (US 4,728,503) as applied to claim 1 above, and further in view of Nishino et al. (US 4,350,613).

Regarding claims 16-20, Motoki, as discussed in claim 1 above, teaches an apparatus for treating exhaust gas from a combustion reaction (col. 1 lines 4-7).

Motoki fails to teach that the catalyst material comprises an oxide, calcium aluminate, and a platinum promoter.

Nishino also discloses an apparatus for treating exhaust gas from a combustion reaction (col. 1 lines 5-10).

Nishino teaches a catalyst for purifying exhaust gasses by preferentially removing carbon monoxide and hydrocarbons from the exhaust gas (col. 1 lines 5-10). The catalyst is comprised of calcium aluminate, titanium oxide, and a platinum promoter/noble metal (see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the catalyst of Nishino with calcium aluminate, titanium oxide and a platinum promoter in the catalyst material of modified Motoki in order to purify exhaust gasses by preferentially removing carbon monoxide and hydrocarbons from the exhaust gas.

12. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al. (US 4,728,503) as applied to claim 21 above, and further in view of Nishino et al. (US 4,350,613).

Regarding claims 25-28, Iida as discussed in claim 21 above, teaches an apparatus for treating exhaust gas from a combustion reaction (col. 1 lines 4-7) and utilizes a titanium oxide (col. 2 lines 37-41). Iida, however, fails to teach that the catalyst material comprises calcium aluminate and a platinum promoter.

Art Unit: 1795

Nishino also discloses an apparatus for treating exhaust gas from a combustion reaction (col. 1 lines 5-10).

Nishino teaches a catalyst for purifying exhaust gasses by preferentially removing carbon monoxide and hydrocarbons from the exhaust gas (col. 1 lines 5-10). The catalyst is comprised of calcium aluminate, titanium oxide, and a platinum promoter/noble metal (see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the catalyst of Nishino with calcium aluminate, titanium oxide and a platinum promoter in the catalyst material of Iida, in order to purify exhaust gasses by preferentially removing carbon monoxide and hydrocarbons from the exhaust gas.

Response to Arguments

13. Applicant's arguments with respect to claims 1 and 7-20 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

14. Previously presented claim objections (to claims 6 and 16) and 35 USC § 112 rejections (to claims 7 and 16) are withdrawn in light of the amendments.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MJM



ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER